

## STEM

# Innovation on display at fair

By Ken Borsuk



Ken Borsuk / Hearst Connecticut Media

Faran Grover shows her experiment to her third-grade class titled “The Spoon Effect” during the STEM Fair.

GREENWICH — Riverside School third-graders Gemma and Jordan Goodman wondered on a ski trip with their family why hand warmers didn’t generate any heat to their thumbs.

“All our other fingers got warm except for the thumbs and we decided to do something about it,” Gemma said.

The brother and sister duo developed a prototype for a thumb warmer for skiers — which they displayed this week at the school’s annual STEM Fair.

Now in its third year, the event aims to take the traditional science fair up a level by challenging students to focus not only on science,

but the other components of STEM (technology, engineering, math).

Students are asked to not just conduct experiments, but to try to develop innovative solutions to real-world challenges.

“Students are developing analytical skills by thinking about a problem or a question they see in the world or around them and then exploring it,” said Riverside School Principal Christopher Weiss. “They’re using scientific methods to explore, but may also be creating an invention or building a model or even creating a business.”

The Goodman twins created a gauze pocket for thumbs filled with a mixture of iron powder, water, activated carbon and other ingredients that, when shaken, creates heat for seven hours. The challenge they faced was making the device small enough to fit under gloves and flexible enough to grip a ski pole.

“It’s just a prototype,” Jordan said. “It leaks a lot and we’re working on it. It was really cool to do this and we want to keep going.”

Weiss said the fair is part of the school’s ongoing effort to encourage student innovation, which includes “genius hour” independent classroom projects and the school’s space for 3-D printing and robotics in the media center.

“What we wanted to do was create an opportunity for students to do things beyond science experiments,” Weiss said. “That’s certainly a staple of this event, but we wanted to create something new and stress innovation and invention. We’ve added coding and robotics as well, and you see that more than you would at a science fair.”

Close to 170 students participated this year from across the school’s grade levels, Weiss said. Some kids worked in teams and others did their projects on their own.

Teachers were not involved with the development of the projects, as the kids were told to do them independently.

“Our parents didn’t even help us with any of it,” said third-grader Chloe Cleaves, who presented an experiment on volcanoes with Annalynn Pacifico. “We were doing it on our own because they didn’t want to deal with the mess of the volcano.”

Pacifico said, “We just went downstairs and came back up with a finished project.”

Cleaves and Pacifico said they were inspired to do more projects after seeing what other kids in school had come up with.

There was considerably less mess for third-grader Faran Grover, who called her project “The Spoon Effect.”

Grover set out to answer a question she’d had for a while: Why does a person’s reflection appear upside down when they see it in a spoon?

“All we needed to do was do some research and make some pictures so people could understand,” Grover said. “It went pretty well after that. It was a lot of fun to do it. I went from not knowing a lot about it to being able to get ideas for other projects, trying to discover new things about things you find everywhere and make something out of the ordinary.”

Projects sought to determine how fast someone can ski down a mountain, why humpback whales have been in Long Island Sound, and how to make gummy worms grow in size. One discovered which brand-name sodas explode the most when you add in Mentos (Coke and Pepsi, a tie).

One group created wind turbines. Third-grader Claire Fugelsang focused her project on “The Science of Cooking,” in which she answered questions like: Why do cupcakes rise when cooked? Why does popcorn pop? And why is soda fizzy?

On Tuesday night, an open house was held as part of the STEM Fair for Riverside School families. On Wednesday, the exhibits were up throughout the school day and kids who made them presented their findings to their classmates. [kborsuk@greenwichtime.com](mailto:kborsuk@greenwichtime.com)

